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Efficacy of Cognitive Behvioral Therapy on Body Dissatisfaction of Females with PCOS

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The current study seeks to determine efficacy of the Cognitive Behavioral Therapy on the levels of Body Dissatisfaction in women diagnosed with Polycystic Ovary Syndrome (PCOS). In a quantitative pre-post experimental design, a purposive convenient sample of 10 women, aged 18 to 25 were recruited after the administration and the scoring of Body Dissatisfaction Scale (BDS; Ijaz & Tariq, 2015) and PCOS symptom checklist. Only those participants who were falling in the mild to moderate range of body dissatisfaction were retained in the study. After the screening of participants in the pretest, 5 participants in the experimental group were subjected to 7 individual sessions based on Cognitive Behavioral Therapy interventions, while remaining 5 were kept in the wait listed control group. Once the intervention phase ended and posttest scores were acquired from both the groups, paired sample t-test, and independent sample t-test were applied for statistical analysis and the results showed that there was no significant difference ($p > 0.05$) in the levels of body dissatisfaction post CBT interventions, and there was also an insignificant difference ($p > 0.05$) when the levels of body dissatisfaction of the control and experimental groups were compared. The results of the study have important implications for clinical practioners.

Keywords: Polycystic Ovary Syndrome (PCOS), Body Dissatisfaction, Cognitive Behavioral Therapy (CBT)

According to the National Polycystic Ovary Syndrome Association of United States (NPCOSA, 2015) of America, PCOS is a reproductive disorder in females determined by genetics, metabolism and hormones, along with being a risk factor of infertility. The disorder can present itself in various apparent symptoms, such as irregular menstruation, severe acne, excess facial and body hair, weight gain, male patterned baldness, and below the surface, can cause cysts in ovaries, enlarging them in the process and also provoke insulin resistance. In their recent studies, the NPCOSA has estimated that nearly 15% of women have PCOS, of which 50% go undiagnosed. Women with this condition are three times likelier to develop cancers of the breast and endometrium. More than 50% of women with PCOS will develop Type II diabetes or cardiovascular diseases by the age of 40. Because of these physical complications, symptoms of anxiety and depression are seen in women. Consequently, suicide attempts are observed to be seven times higher in the current population. However, the organization has also established that since the disorder can develop at any age, pubescent and prepubescent alike, the earlier the diagnosis the better the prognosis, since emotional and physical effects of the disorder may become manageable over time (Magnotti, & Futterweit, 2007).

The effects of PCOS are however are not just limited to physical wellbeing, but psychological as well; more notably in the form depression and anxiety (NPCOSA, 2015). Sufficient studies have revealed a strong correlation between depression and PCOS in women (Trent, Rich, Austin & Gordon, 2002; 2003). Depressive symptoms usually correlate with obesity (Dixon, Dixon & O'Brian, 2003) and since obesity is also a symptom of PCOS, hence all these components may collide and aggravate the situation. Research has also supported the

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notion, that obesity is a risk factor for depression in women with PCOS (Elsenbruch et al., 2006). Not only obesity, PCOS also alter a woman's appearance, such as development of acne, loss of hair, weight gain and hirsutism, the process could be tarnishing for woman's femininity.

The literature on Polycystic Ovarian Syndrome dates back to 1721, however, American gynecologists Stein, Michael and Leventhal (1935), are essentially credited as the first plain clothesmen of the disorder. Much later, towards the end of the 20th century, the National Institute of Health (NIH) proposed proper diagnostic criteria for PCOS, which has since been widely accepted. Much research and investigation has led to the conclusion that PCOS is a reproductive disorder in females determined by genetics, metabolism and hormones, along with being a risk factor of infertility. In their recent studies, the NPCOSA has estimated that nearly 15% of women have PCOS, of which 50% go undiagnosed. Women with this condition are three times likelier to develop cancers of the breast and endometrium. More than 50% of women with PCOS will develop Type II diabetes or cardiovascular diseases by the age of 40. In 2003, a newer diagnostic criteria through a panel of experts, which demanded two out of three criteria to be met in order to diagnose PCOS i.e. a) anovulation- absence of ovulation in the monthly cycle, b) hyper androgenism and c) cystic ovaries (Rotterdam, 2003).

Keeping the variables in context, literature has supported that PCOS and emotional disturbances highly correlate. This has been evident in investigations where it was suggested that women with symptoms of PCOS such as hirsutism, obesity, acne, excessive facial hair and male patterned hair loss, have a low self-esteem, negative self-image, high levels of depression and psychological distress when compared to healthy women (Weiner, Primeau & Ehrmann, 2004). In more recent studies, the link between PCOS and mental health has been lucidly noticed, where women with PCOS were significantly more neurotic, anxious and depressed than their healthier counterparts (Barry, Hardiman, Saxby, & Kuczmierczyk, 2011). A study also reported that anxiety alone in PCOS patients was relatively high than healthy women (Laggari et al, 2009).

Out of all the symptoms of the spectrum, difficulty maintaining ideal weight has been established as the most upsetting of them all in adolescents (Trent, Rich, Austin & Gordon, 2002; 2003). Hormonal disorders have been linked to negative body image, which has further been reported to cause depression among women (Rofey et al, 2009). Reportedly, depression has a prevalence rate of 40% in women with PCOS (Kerchner, Lester, Stuart & Dokars, 2009). Studies have reported mild to moderate depression in women with PCOS (Tan, et., 2008). Because PCOS increases the risk of obesity because of fat accumulation, it is recognized as one of the contributing factors of depression in women with PCOS, and, while researches have shown depressive symptoms in obese women in general, they have reported higher scores of depression in obese women with PCOS (Hollinrake, et al., 2007).

With PCOS prevailing high and mighty around the world, recent reports have surfaced stating that the subcontinent comprising of Pakistan and India is not far behind. Unfortunately, due to the low literacy rate and lack of awareness, the disorder remains unknown to the general public. In a recent investigation conducted with regards to the knowledge of the matter among urban women in Karachi, Pakistan, it was determined that a significant amount of the participants reported symptoms of PCOS (36% reported having hirsutism, 14% had menstrual irregularities, 9% had oligomenorrhoea and 3% women had amenorrhea) while only 10% of the participants were familiar with the disorder (Gul, Zahid & Ansari, 2014). In a similar study conducted in Pakistan's city of Quetta, 72% of university going women were unaware about PCOS (Haq, Khan, Riaz, Nasim, & Tahir, 2017). Another

study entailed a positive correlation between depression and body dissatisfaction among women with PCOS, as compared to two groups of women, one comprising of infertile women, the other comprised of women unaffected by any ailment (Himelein & Thatcher, 2006).

One study also linked anxiety to the patients' perceived appearance, body image, and fear of possible infertility, and also concluded that women with PCOS are likelier to feel unattractive and undesirable to their romantic partners (Dowdy, 2012). Women with PCOS are also expected to develop unhealthy binge eating habits and use unconventional and harmful methods to lose weight such as starvation, purging and consuming laxatives and diuretics (Jasik & Lustig, 2008).

Research has established that women with PCOS generally have lower body satisfaction when compared to a control group (Bazarganipour et al., 2014). Another study reported that low levels of body satisfaction along with low education, with Body Mass Index (BMI) and age controlled, were factors that were correlated with depression in women with PCOS (Himelein & Thatcher, 2006). Hence, as it has been established that the physical implications of PCOS can influence one's body image which could, in the long run, be damaging to a woman's mental health and self-confidence (Coffey & Mason, 2003). Thus, it is required to research how PCOS can be managed. Perusal of literature suggest that CBT is a suitable candidate, and this is what the current research intends to use it.

Cognitive Behavioral Therapy is a successful, widely used and popularized mode of treatment that has been used for mood and anxiety disorders along with obsessive compulsive and other related disorders (Bystritsky, Khalsa, Cameron & Schiffman, 2013). CBT has been proven effective in achieving significant weight loss, managing body image, treating eating disorders, body dysmorphic disorders and improving overall quality of life. The psychotherapeutic interventions have also managed emotional disturbances cause by hormonal disorders such as Premenstrual Stress (PMS), Premenstrual Dysphoric Disorder (PMDD) and also Polycystic Ovary Syndrome (PCOS; Didie, Reinecke, & Phillips, 2010). Moreover, CBT has been previously used with adolescent girls with PCOS, where there was a significant reduction of weight and depressive symptoms. The study was however, conducted in the absence of a control group (Hollinrake, Maifeld, Voorhis & Dokras, 2007). CBT has been successfully used as a therapeutic tool to reduce symptoms of depression and reduce obesity among females with PCOS (Cooney, et al., 2018).

One research in particular had some interesting findings. The different groups of participants diagnosed with Premenstrual Dysphoric Disorder were exposed to different methods of treatments including CBT, relaxation techniques, assertive training or medicinal interventions such as usage of SSRIs and hormones (Lustyk, Gerrish, Shaver & Keys, 2009). The results reported that PMDD symptoms were reduced significantly and had durable impact in the CBT groups when compared to medicine groups. Another study stipulates that combining CBT with medical interventions could possibly help women with PCOS with adapting to healthier lifestyles which could possibly lead to betterment in their disorder (Elizabeth, Leslie, & Critch, 2009).

Keeping all of this in context, it is important to consider how not much to very little research has been conducted for women's health., In particular, the Pakistani society where the concept of PCOS is fairly new, and the acceptance of it minimal, many women go through these struggles alone, or in the shadows, as talking about hormonal disorders, menstrual health and hygiene is still a taboo topic in the Indo- Pak society. All of this along with the added pressure of living up to the society's standard of beauty which is

conventionally fair skinned and thin can cause more emotional disturbances in young girls and women of all ages alike. Therefore, the current study aims to describe the efficacy Cognitive Behavioral Therapy on Body dissatisfaction among women with PCOS. It is being hypothesized that CBT will reduce body dissatisfaction of women with PCOS after exposure to CBT, and there would be a significant difference in the body dissatisfaction of those women (with PCOS) who were exposed (experimental group) to CBT as compare to those who are not (waitlisted control group).

Method

Research Design

This research is structured on a quantitative pre-post experimental design. The study comprises of two groups; an experimental group and a wait listed control group, with five participants in each group.

Participants

The participants of the current study comprised of 10 women diagnosed with PCOS, recruited via convenient sampling through adverts on social media, between the ages of 18 and 25. The participants were unmarried and divided into two groups; control and experimental, by means of random sampling. They ranked at moderate levels on body dissatisfaction Body Dissatisfaction Scale (BDS; Tariq & Ijaz, 2015). Participants who had any comorbidity with other major psychological disorder, speech disorder or married or previously married females were ineligible to participate in the study. Moreover, clients on medication other than to aid their hormonal disorder or below the age of 18 and above the age of 25 were also ineligible for this study. Furthermore, clients with suicidal tendencies were listed for exclusion criteria.

Measures

The following measures were used in the study:

Informed Consent Form

Written consent was obtained from the clients by means of an informed consent. The consent form entailed the rights of the clients, guaranteeing the confidentiality of information they may provide, data regarding any foreseeable discomfort, harm or risks along with the right to withdraw from the research at any given time without penalty.

Demographic Information Form

The demographic information form consisted of information regarding age, marital status, native language, education, qualification, socio economic status and details of any utilization of medications.

PCOS Symptom Checklist

A checklist comprising of the most commonly experienced symptoms of PCOS in the sub continental region was devised after literature review and interviewing 3 gynecologists and endocrinologists from Karachi, Pakistan.

Body Dissatisfaction Scale.

The self-report questionnaire consists of 26 items which usually take under 20 minutes to administer and score. The items are based on the three features of interest to the Pakistani population which are body shape and weight, facial features and skeletal structure, with the addition of hair for males. The scale has a 5 point rating system, ranging from 0 (never) to 4 (always). Scores from 16 to 25 indicate levels of *no dissatisfaction*, scores from 26 to 31 indicate *borderline dissatisfaction*, and scores from 32 to 38 indicate *mild dissatisfaction*, scores from 39 to 50 indicate *moderate dissatisfaction*, and scores 51 and above indicate *severe dissatisfaction* (Ijaz & Tariq, 2015).

Procedure

First of all, advertisements explaining the nature of the study and requirements of the participants were posted on social media. After initial screening information regarding PCOS and body dissatisfaction was acquired. Through purposive sampling, clients were approached as per the inclusion criteria, and through random sampling the participants were divided into 2 groups, with 5 participants each. Clients were screened through Body Dissatisfaction Scale (BDS). The experimental group was exposed to Cognitive Behavioral Therapy while the wait listed control group received the intervention after the completion of study by the experimenter herself.

Table 1

Seven-week session plan for intervention group

Sessions	Aims and Objectives
Session 1	The aim of the first session was to build rapport with the clients. The participants were encouraged to share their personal encounters with PCOS, a brief history with the disorder and how the disorder had impacted their life.
Session 2	The aim of this session was to psycho-educate the participants with reference to Polycystic Ovarian Syndrome, its causes and impact on physical and mental health. Towards the end of the discussion, a brief introduction to CBT was explored to familiarize them with what could be expected in the upcoming sessions.
Session 3	The aim of the third session was to pick up from the last session in order to deeply discuss the CBT Model, and explain to the participants how their thoughts, feelings and behaviors amalgamate together. The session encouraged clients to relate real life incidences where a negative thought had occurred relevant to their hormonal disorders. Homework was set where clients were asked to monitor their thoughts, feelings and behaviors during the week and bring some record of it in the next session.
Session 4	Aim of this session was to identify maladaptive thoughts and cognitive errors, to tackle feelings of hopelessness, despair and negative beliefs with reference to their appearance. The diagram or chart from the previous session was used to dissect situations that may have occurred over the preceding week. Thought record sheet was given as homework.
Session 5	This session was aimed at introducing relaxation exercises to reduce negative thoughts that tarnish one's self worth and perception. By combining imagery and progressive muscle relaxation the clients will be especially made to relax in the lower body, uterine area. This will enable an

	increase in cognitive, physical and emotional control over the self. Pleasant imagery will be used to replace the perceived negativity in the uterine area. For homework the clients were asked to practice the PMR at home.
Session 6	This session will be aimed at deriving metaphors for the ovaries in order to enable clients understand their difficulties from a different perspective. The clients were be asked to imagine a metaphor for their ovaries as a means to start a conversation among all the group members. The session was a discussion-oriented time frame to promote insight and provide and alternative perception in order to review the problem
Session 7	This session would revisit thoughts, feelings and behaviors which were covered in the initial sessions and the participants would be asked to observe any changes they might have observed over the course of the past few weeks. PMR would be revisited to strengthen its practice and promote relaxation. The entire therapy process was evaluated, along with the discussion of its impact, towards the end of the session.

The above-mentioned table describes the seven-week intervention plan used in the intervention group of this study. The aim was to develop insight and coping skills to deal with thoughts and feelings regarding their body image.

Results

The results were calculated via SPSS 22. To determine the efficacy of the interventions used on the participants, paired sample and independent sample t-tests were computed to test the hypotheses.

Table 2

Descriptive Statistics and Paired Sample t-Values of Body Dissatisfaction Pre & Post Intervention (N=5)

Variable	Pretest		Posttest		*t(df)*	*p*	*95% CI*	
	M	*SD*	*M*	*SD*			*LL*	*UL*
Body Dissatisfaction	1.48	0.29	1.09	0.29	1.62 (4)	0.18	-0.27	1.06

In the results it was found through paired sample t tests that there was an insignificant difference in the levels of Body Dissatisfaction after the administration of Cognitive Behavioral interventions. This, hereby, rejects the first hypothesis, stating that there would be significant difference in the levels of body dissatisfaction in participants undergoing Cognitive Behavioral Therapy Interventions.

Likewise, the second hypothesis generated stipulated that there would be difference in the levels of body dissatisfaction among the control and experimental groups. A comparison was made among post-test scores of the experimental and waitlisted control groups via independent sample t-test.

Table 3

Independent sample t values and Descriptive Statistics for Body Dissatisfaction between control and experimental groups

Variable	Waitlisted Control Group *(n=5)*		Experimental Group *(n=5)*		*t(df)*	*p*	*95% CI*	
	M	*SD*	*M*	*SD*			*LL*	*UL*
Body Dissatisfaction	1.50	0.38	1.09	0.29	0.82(8)	0.43	-0.39	0.83

Table 3 illustrates the independent sample t-test which indicates no significant difference between the experimental and waitlisted control group. Statistical analysis showed that there was no significant difference, rejecting the second hypothesis, which stated that there would be significant difference post-test levels of body dissatisfaction between the waitlisted control and experimental groups. Furthermore an additional analysis was conducted to see the relationship between symptoms of PCOS and levels of Body Dissatisfaction. The findings are stated below in Table 4.

Discussion

The purpose of the study was to determine the efficacy of Cognitive Behavioral Therapy on the levels of Body Dissatisfaction in women with PCOS. The first hypothesis stipulated that there would be a significant difference in the levels of body dissatisfaction post CBT interventions in females with PCOS. The second hypothesis stipulated that there would be a difference between the waitlisted control and intervention group (experimental group).

The findings of the current study did not support the first hypothesis. The difference was proven to be insignificant. It was found that the levels of body dissatisfaction were not significantly effected when the experimental group underwent cognitive behavioral interventions designed for them. However, considering the results depicted in Table 2, we can observe that there was a notable difference in the mean scores. The body dissatisfaction scores did reduce from 1.48 to 1.09, indicating that the 7-week session plan did have some effect, albeit a minor one, and could hypothetically have had a bigger effect, if not for the scarcity of time, resources or sample restraints. Some factors could have also been at play here, for the hypothesis to not be supported statistically. Keeping in consideration the individual differences, it is safe to say that some clients responded more positively to the interventions, while one did not report any objective differences in her levels of body dissatisfaction at all. While all participants had willingly signed up for therapy, the intervention plan did not create statistically significant impact on the levels of body dissatisfaction.

One uncontrollable factor was the changes in the participants' personal lives that had slithered their way into the effect of therapy. The research had a strict inclusion and exclusion criteria, and only comprised of single women, with the rationale that in a society like Pakistan, the added pressure of finding a fine suitor and getting married would increase the levels of body dissatisfaction with the already existing stigmatic diagnosis of PCOS. But halfway through the intervention, one of the participant got engaged. It is noteworthy that this participant had reported the most progress since the therapy started, had started going to the gym and had incorporated a good diet and had adapted to a healthier lifestyle. Participant was also the most motivated and receptive to the intervention plan. Towards termination the participant reported being very pleased with experiences. One would have expected to see a drastic reduction in the levels of body dissatisfaction upon posttest, but the results proved

otherwise. The score only dropped down by 6 points. Upon follow up the participant revealed that there had been positive changes in personal life, which could have had an effect on the participant's overall perception and self-image. Similarly, another had been dealing with an impending eviction, and another reported feeling constantly scrutinized by family and friends, which raises the question as to if PCOS was responsible for the participant's body dissatisfaction at all.

The second hypothesis, which postulated to compare the difference between in posttest levels of body dissatisfaction between the control and experimental groups, was also unsupported by the statistical evidence gathered, however, taking a look at Table 3, does show a noteworthy difference between the two. The posttest mean score from the experimental group stands at 1.09, whereas the posttest mean score of the control group stands at 1.50, which upon first glance, seems different but is statistically insignificant. Perhaps a bigger sample size and a detailed session plan would have created a significant impact and there had been vast difference between the two groups.

One very important fact to note here is that body dissatisfaction is not the only facet associated with PCOS. We have previously established that depression, anxiety, obesity and mood swings are all linked with PCOS and other hormonal disorders (Weiner, Primeau & Ehrmann, 2004). Body Dissatisfaction in particular, has been related with obesity and depression (King, Matacin, White & Marcus, 2005). Research has stipulated that hormonal disorders in general lead to a negative body image, which in turn leads to depression (Rofey et al., 2009).

Obesity and depression have also been statistically proven to have a positive relationship. But it is also important to note that depression can also occur in people who are not obese, possibly triggered by remarks from peers and family members or when people are surrounded by thin friends. This was a significant concern displayed by a participant, who was diagnosed with PCOS, but her symptom were not as severe or bothersome to her; but was afflicted by the pressure of her friends and family who compared her to her thin looking sister. Another participant also felt scrutinized once she got engaged and had started feeling conscious in front of her friends and family. Regardless, depression has been statistically linked to either of those factors, societal pressure and obesity.

Considering that this research studied women diagnosed with PCOS and high levels of body dissatisfaction, the sample was automatically overweight in majority, with over 60% of the participants weighing over 60 kilograms. Which leads us to the assumption that, the extra weight may, or may not be contributing to their body dissatisfaction, depending on whether or not they were in some kind of pressure from their surroundings.

Keeping in mind that Body Dissatisfaction is just one aspect of PCOS, there could also be a possibility that it may be linked to previously mentioned factors or facets which could be intervening, such as depression or obesity, or even the hormonal imbalance. The levels of depression were not checked in the sample, but a previously done research administered CBT on obese patients for weight loss, which ultimately brought down their depressive symptoms (Wilhem, Otto & Lohr, 1999). Similarly, a research was conducted to improve the quality of life of women with PCOS and reduce symptoms of depression, which ultimately improved their self-esteem (Hollinrake, Abreu, Maifeld, Voorhis & Dokras, 2007). Perhaps the results weren't statistically significant because an intervening variable was missed. The study on which this research is based, also proposed an eclectic approach incorporating a therapeutic incorporation like Cognitive Behavioral Therapy, medical interventions and adaptation to a healthier lifestyle to help women with PCOS (Elizabeth,

Leslie, & Critch, 2009) which allows to make for a good rationale as to why the results showed insignificance, as the present study only focused on reducing body dissatisfaction with therapy and no other interventions were incorporated and no other intervening variables were touched.

One factor that can't be ignored here is the prevailing influence of pop culture and social media. As we have previously established, the rising influence of the media has always had an influence on how women view themselves. The standard desirable body for men has been the same, yet for women it has been subjected to constant change. Here, it is important to note that body dissatisfaction may vary for everyone based on their culture, preferred source of media consumption and personal preferences which may or may not be impacted by the opinion of peers and immediate family members (Ricciardelli & McCabe, 2001).

One drawback to this finding is an absence of a comparison with a healthy population, undiagnosed with the hormonal disorder. Various researches have estimated the levels of body dissatisfaction in young adult females (Ijaz & Tariq, 2015) yet they have noy guaranteed the absence of hormonal disorders in the sample. Maybe a better approach to understanding levels of body dissatisfaction in women with PCOS would be to compare them with the levels of body dissatisfaction in normal, healthy women, of the same age group, with factors such as BMI and familial support controlled.

Conclusions

This research was set out to explore the efficacy of Cognitive Behavioral Therapy on levels of Body Dissatisfaction in females with Polycystic Ovary Syndrome, and also compare it to a wait listed control group. The results showed that there was an insignificant difference in the levels of body dissatisfaction post intervention, and there was also an insignificant difference when the results were compared to the control group. The study concludes that CBT may not be effective in reducing levels of body dissatisfaction in females with PCOS, perhaps its very cognitive nature is ineffective when dealing with the emotional disturbances of this hormonal disorder.

Limitations and Future Recommendations

As we have established in the earlier, Polycystic Ovary Syndrome has become increasingly prevalent in the sub continental societies. This research could be a step in the direction of facilitating various women's diagnosis, treatment and/or management. Most importantly, the study sheds light on women's reproductive health, along with mental and emotional health, which has been largely ignored in this part of the world. The intervention plan comprises of the universally used and approved Cognitive Behavioral Therapy, which could help in the treatment of body image issues, as established in the literature review. The study may not have been effective in terms of significant results, but did have an overall positive impact on the participants, which could open new avenues for different kinds of therapies which could be used in the treatment of PCOS. Body dissatisfaction is one area impacted by PCOS, which was explored in this study. There are many other emotional disturbances that come with the hormonal disorder which could be catered to with therapeutic interventions in different schools of psychology. This research could definitely highlight the ideology that mental health is beyond psychiatric disabilities and can include emotional disturbances caused by various health issues. Referring to the previous point, the present study could also plant the idea that women's health is not limited to their physical ability, but much rather includes their sexual, emotional, spiritual and mental health too, which may be managed with psychological interventions, along with other mediums. The study may have

opened a new avenue to understand PCOS as a hormonal disorder by establishing a relationship with height.

Few limitations were observed in the study. Perhaps the study would have been more effective and impactful without them. The study comprised of only 5 participants in each group. Seventy of the participants had spent at least a year since their diagnosis, which may have given them ample time to adjust to their new lifestyles and accept the disorder and its implication. Due to insufficiency of time, the intervention plan was not as extensive as it should have been. Individual therapeutic sessions may not have given the emotional support provided in a group therapy setting. Perhaps in the future, measures to combat said limitations could be taken to replicate the study, such as recruiting a larger demographic, or taking a group setting approach to build a sense of belonging among the participants. Amore detailed session plan or a different therapeutic approach altogether would be a start in the right direction.

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